

CLAIMS***We Claim:***

1. A process for reducing naphthalene concentration in a naphthalene containing aromatic fluid, the process comprising hydrogenating at least a portion of the naphthalene in the presence of a Group VIII metal catalyst at a temperature from 50 °C to 110 °C to form tetrahydronaphthalene.
2. The process of claim 1 wherein the tetrahydronaphthalene is further hydrogenated to decahydronaphthalene.
3. The process of claim 1 wherein the metal catalyst comprises palladium.
4. The process of claim 1 wherein the metal catalyst is supported.
5. The process of claim 4 wherein the support is selected from alumina, carbon, silica, and mixtures thereof.
6. The process of claim 5 wherein the metal catalyst comprises palladium on an alumina support.
7. The process of claim 6 wherein the metal catalyst comprises 0.01 wt% to 25 wt% palladium on an alumina support.
8. The process of claim 7 wherein the metal catalyst comprises 0.1 wt% to 1.0 wt% palladium on an alumina support.
9. The process of claim 5 wherein the metal catalyst comprises palladium on a carbon support.
10. The process of claim 9 wherein the metal catalyst comprises 0.01 wt% to 25 wt% palladium on a carbon support.
11. The process of claim 10 wherein the metal catalyst comprises 0.1 wt% to 1.2 wt% palladium on a carbon support.
12. The process of claim 5 wherein the metal catalyst comprises palladium on a silica support.
13. The process of claim 12 wherein the metal catalyst comprises 0.01 wt% to 25 wt% palladium on a silica support.
14. The process of claim 13 wherein the metal catalyst comprises 0.1 wt% to 1.0 wt% palladium on a silica support.
15. The process of claim 1 wherein the hydrogenation occurs at a temperature from 90 °C to 105 °C.

16. The process of claim 1 wherein the hydrogenation occurs at a pressure from 100 psig to 3500 psig.
17. The process of claim 16 wherein the hydrogenation occurs at a pressure from 250 psig to 500 psig.
18. The process of claim 1 wherein the hydrogenation occurs in a reactor selected from a fixed bed reactor and a batch reactor.
19. The process of claim 1 wherein the naphthalene containing aromatic fluid comprises from at least 0.2 wt% naphthalene.
20. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 0.5 wt% to 35 wt% naphthalene.
21. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 1 wt% to 30 wt% naphthalene.
22. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 5 wt% to 15 wt% naphthalene.
23. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 8 wt% to 12 wt% naphthalene.
24. The process of claim 1 wherein naphthalene conversion to tetrahydronaphthalene is greater than from 85%.
25. The process of claim 24 wherein naphthalene conversion to tetrahydronaphthalene is greater than from 95%.
26. The process of claim 25 wherein naphthalene conversion to tetrahydronaphthalene is greater than from 99%.
27. The process of claim 1 wherein selectivity to tetrahydronaphthalene is greater than from 80%.
28. The process of claim 27 wherein selectivity to tetrahydronaphthalene is greater than from 85%.
29. The process of claim 28 wherein selectivity to tetrahydronaphthalene is greater than from 95%.
30. The process of claim 29 wherein selectivity to tetrahydronaphthalene is greater than from 98%.